```
FFFFFFFFFFFFFFF     000000000     RRRRRRRRRRRR     RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
FFFFFFFFFFFFFFF     000000000     RRRRRRRRRRRR     RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
FFFFFFFFFFFFFFF     000000000     RRRRRRRRRRRR     RRRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
FFF              000       000     RRR       RRR     RRR       RRR        TTT         LLL
FFF              000       000     RRR       RRR     RRR       RRR        TTT         LLL
FFF              000       000     RRR       RRR     RRR       RRR        TTT         LLL
FFF              000       000     RRR       RRR     RRR       RRR        TTT         LLL
FFF              000       000     RRR       RRR     RRR       RRR        TTT         LLL
FFFFFFFFFFF      000       000     RRRRRRRRRRR       RRRRRRRRRRR         TTT         LLL
FFFFFFFFFFF      000       000     RRRRRRRRRRR       RRRRRRRRRRR         TTT         LLL
FFFFFFFFFFF      000       000     RRRRRRRRRRR       RRRRRRRRRRR         TTT         LLL
FFF              000       000     RRR   RRR         RRR   RRR          TTT         LLL
FFF              000       000     RRR    RRR        RRR    RRR         TTT         LLL
FFF              000       000     RRR     RRR       RRR     RRR        TTT         LLL
FFF              000       000     RRR      RRR      RRR      RRR       TTT         LLL
FFF              000       000     RRR       RRR     RRR       RRR      TTT         LLL
FFF                000000000       RRR        RRR    RRR        RRR     TTT         LLLLLLLLLLLLLLL
FFF                000000000       RRR         RRR   RRR         RRR    TTT         LLLLLLLLLLLLLLL
FFF                000000000       RRR          RRR  RRR          RRR   TTT         LLLLLLLLLLLLLLL
```

```
FFFFFFFFFF   000000    RRRRRRRR    RRRRRRRR    EEEEEEEEEE    AAAAAA    DDDDDDD    IIIIII    LL
FFFFFFFFFF   000000    RRRRRRRR    RRRRRRRR    EEEEEEEEEE    AAAAAA    DDDDDDD    IIIIII    LL
FF          00    00    RR    RR    RR    RR    EE        AA    AA    DD    DD    II    LL
FF          00    00    RR    RR    RR    RR    EE        AA    AA    DD    DD    II    LL
FF          00    00    RR    RR    RR    RR    EE        AA    AA    DD    DD    II    LL
FFFFFFFF    00    00    RRRRRRRR    RRRRRRRR    EEEEEEE    AA    AA    DD    DD    II    LL
FFFFFFFF    00    00    RRRRRRRR    RRRRRRRR    EEEEEEE    AA    AA    DD    DD    II    LL
FF          00    00    RR  RR      RR  RR      EE        AAAAAAAAAA    DD    DD    II    LL
FF          00    00    RR  RR      RR  RR      EE        AAAAAAAAAA    DD    DD    II    LL
FF          00    00    RR    RR    RR    RR    EE        AA    AA    DD    DD    II    LL
FF          00    00    RR    RR    RR    RR    EE        AA    AA    DD    DD    II    LL      ....
FF          000000     RR      RR   RR      RR  EEEEEEEEEE    AA    AA    DDDDDDD    IIIIII    LLLLLLLLLL    ....
FF          000000     RR      RR   RR      RR  EEEEEEEEEE    AA    AA    DDDDDDD    IIIIII    LLLLLLLLLL    ....

LL          IIIIII    SSSSSSSS
LL          IIIIII    SSSSSSSS
LL          II      SS
LL          II      SS
LL          II      SS
LL          II      SS
LL          II        SSSSSS
LL          II        SSSSSS
LL          II              SS
LL          II              SS
LL          II              SS
LL          II              SS
LLLLLLLLLL  IIIIII    SSSSSSSS
LLLLLLLLLL  IIIIII    SSSSSSSS
```

L 2

```
0000    1              .TITLE  FOR$READ_IL - FORTRAN READ internal list-directed
0000    2              .IDENT  /1-001/        File: FORREADIF.MAR  Edit: SBL1001
0000    3      ;
0000    4      ;****************************************************************
0000    5      ;*                                                              *
0000    6      ;*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                     *
0000    7      ;*  DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.      *
0000    8      ;*  ALL RIGHTS RESERVED.                                        *
0000    9      ;*                                                              *
0000   10      ;*  THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED  *
0000   11      ;*  ONLY IN  ACCORDANCE WITH  THE  TERMS  OF  SUCH  LICENSE  AND WITH THE   *
0000   12      ;*  INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR  ANY  OTHER   *
0000   13      ;*  COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY   *
0000   14      ;*  OTHER PERSON.  NO TITLE TO AND OWNERSHIP OF  THE  SOFTWARE IS  HEREBY    *
0000   15      ;*  TRANSFERRED.                                                *
0000   16      ;*                                                              *
0000   17      ;*  THE INFORMATION IN THIS SOFTWARE IS  SUBJECT TO CHANGE WITHOUT NOTICE   *
0000   18      ;*  AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT    *
0000   19      ;*  CORPORATION.                                                *
0000   20      ;*                                                              *
0000   21      ;*  DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE  OR  RELIABILITY OF ITS   *
0000   22      ;*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.     *
0000   23      ;*                                                              *
0000   24      ;*                                                              *
0000   25      ;****************************************************************
0000   26      ;
0000   27      ;
0000   28      ;++
0000   29      ; FACILITY: FORTRAN Support Library - user callable
0000   30      ;
0000   31      ; ABSTRACT:
0000   32      ;
0000   33      ;       This module contains the entry point for the FORTRAN
0000   34      ;       READ internal list-directed I/O statement.  It is simply
0000   35      ;       a call to FOR$$IO_BEG with bits in R0 which describe the
0000   36      ;       parameter list.  FOR$$IO_BEG interprets the parameters.
0000   37      ;
0000   38      ; MAINTENANCE NOTE:
0000   39      ;       The transfer vector (RTLVECTOR+ALLGBL) must have the following:
0000   40      ;
0000   41      ;       .TRANSFER       FOR$READ_IF
0000   42      ;       .MASK           FOR$$IO_BEG
0000   43      ;       BRW             FOR$READ_IF+2
0000   44      ;
0000   45      ;       This puts the correct mask in entry vector, that is FOR$$IO_BEG entry mask.
0000   46      ;       Furthermore this module must only use R0 and R1
0000   47      ;       since any other register might not be in the entry mask for FOR$$IO_BEG.
0000   48      ;
0000   49      ; ENVIRONMENT: User access mode; mixture of AST level or not
0000   50      ;
0000   51      ; AUTHOR: Steven B. Lionel, CREATION DATE: 21-April-1983
0000   52      ;
0000   53      ;
0000   54      ; Edit History:
0000   55      ;
0000   56      ; 1-001 - Original.  SBL 21-April-1983
```

```
            0000        58              .SBTTL  DECLARATIONS
            0000        59
            0000        60      ;
            0000        61      ; INCLUDE FILES:
            0000        62      ;
            0000        63
            0000        64              $FORPAR                          ; Define inter-module FORTRAN symbols
            0000        65              $ISBDEF                          ; Define statement type symbols
            0000        66
            0000        67      ;
            0000        68      ; EXTERNAL SYMBOLS:
            0000        69      ;
            0000        70
            0000        71              .DSABL  GBL                      ; Declare all external symbols
            0000        72              .EXTRN  FOR$$IO_BEG              ; common I/O statement processing
            0000        73      ;+
            0000        74      ; The following references are to make sure the necessary UDF and REC
            0000        75      ; modules are loaded.  These are the routines which are called through
            0000        76      ; the dispatch tables in FOR$$DISPAT.
            0000        77      ;-
            0000        78              .EXTRN  FOR$$UDF_RL0, FOR$$UDF_RL1, FOR$$UDF_RL9
            0000        79              .EXTRN  FOR$$REC_RIL0, FOR$$REC_RIL1, FOR$$REC_RIL9
            0000        80
            0000        81      ;
            0000        82      ; MACROS:
            0000        83      ;
            0000        84              NONE
            0000        85      ;
            0000        86      ; PSECT DECLARATIONS:
            0000        87      ;
            0000        88
        00000000        89              .PSECT  _FOR$CODE PIC,USR,CON,REL,LCL,SHR,EXE,RD,NOWRT,LONG
            0000        90
            0000        91      ;
            0000        92      ; EQUATED SYMBOLS:
            0000        93      ;
            0000        94
            0000        95
            0000        96      ;
            0000        97      ; OWN STORAGE:
            0000        98      ;
            0000        99              NONE
            0000       100      ;
```

N 2

FOR$READ_IL   - FORTRAN READ internal list-directed   15-SEP-1984 23:56:54 VAX/VMS Macro V04-00   Page 3
1-001   FOR$READ_IL - READ internal list-directe 6-SEP-1984 10:59:07 [FORRTL.SRC]FORREADIL.MAR;1   (3)

```
                              0000   102                .SBTTL  FOR$READ_IL - READ internal list-directed
                              0000   103
                              0000   104  ;++
                              0000   105  ; FUNCTIONAL DESCRIPTION:
                              0000   106  ;
                              0000   107  ;         Initialize the FORTRAN I/O system to perform
                              0000   108  ;         a READ internal list-directed I/O statement.
                              0000   109  ;
                              0000   110  ; CALLING SEQUENCE:
                              0000   111  ;
                              0000   112  ;         CALL FOR$READ_IL (user_vbl.rt.dx [, err_adr.j.r [, end_adr.j.r]])
                              0000   113  ;
                              0000   114  ; INPUT PARAMETERS:
                              0000   115  ;
                              0000   116  ;         user_vbl.rt.dx          User's string variable
                              0000   117  ;         [err_adr.j.r]           optional ERR= address
                              0000   118  ;         [end_adr.j.r]           optional END= address
                              0000   119  ;
                              0000   120  ; IMPLICIT INPUTS:
                              0000   121  ;
                              0000   122  ;         NONE except those used by FOR$$IO_BEG.
                              0000   123  ;
                              0000   124  ; OUTPUT PARAMETERS:
                              0000   125  ;
                              0000   126  ;         NONE
                              0000   127  ;
                              0000   128  ; IMPLICIT OUTPUTS:
                              0000   129  ;
                              0000   130  ;         NONE except those left by FOR$$IO_BEG.
                              0000   131  ;
                              0000   132  ; COMPLETION CODES:
                              0000   133  ;
                              0000   134  ;         NONE
                              0000   135  ;
                              0000   136  ; SIDE EFFECTS:
                              0000   137  ;
                              0000   138  ;         NONE except those of FOR$$IO_BEG.
                              0000   139  ;
                              0000   140  ;--
                              0000   141
                     0000'    0000   142  FOR$READ_IL::   .MASK   FOR$$IO_BEG
      50    16    9A  0002   143                MOVZBL  #ISB$K_ST_TY_RIL, R0    ; Statement type
00000002'GF   17         0005   144                JMP     G^FOR$$IO_BEG+2        ; branch past call mask
                              000B   145
                              000B   146
                              000B   147                .END
```

```
FOR$$IO_BEG                    ********  X   00
FOR$$REC_RIL0                  ********  X   00
FOR$$REC_RIL1                  ********  X   00
FOR$$REC_RIL9                  ********  X   00
FOR$$UDF_RL0                   ********  X   00
FOR$$UDF_RL1                   ********  X   00
FOR$$UDF_RL9                   ********  X   00
FOR$READ_IL                    00000000 RG   01
ISB$K_ST_TY_RIL              = 00000016
```

```
                        +-----------------+
                        ! Psect synopsis !
                        +-----------------+
```

PSECT name	Allocation		PSECT No.	Attributes										
. ABS .	00000000	(0.)	00 (0.)	NOPIC	USR	CON	ABS	LCL	NOSHR	NOEXE	NORD	NOWRT	NOVEC	BYTE
_FOR$CODE	0000000B	(11.)	01 (1.)	PIC	USR	CON	REL	LCL	SHR	EXE	RD	NOWRT	NOVEC	LONG

```
                  +--------------------------+
                  ! Performance indicators !
                  +--------------------------+
```

Phase	Page faults	CPU Time	Elapsed Time
Initialization	30	00:00:00.08	00:00:00.66
Command processing	121	00:00:00.63	00:00:03.24
Pass 1	133	00:00:01.26	00:00:04.64
Symbol table sort	0	00:00:00.18	00:00:00.49
Pass 2	51	00:00:00.46	00:00:01.91
Symbol table output	2	00:00:00.02	00:00:00.02
Psect synopsis output	3	00:00:00.03	00:00:00.05
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	342	00:00:02.66	00:00:11.02

The working set limit was 900 pages.
6398 bytes (13 pages) of virtual memory were used to buffer the intermediate code.
There were 20 pages of symbol table space allocated to hold 187 non-local and 0 local symbols.
147 source lines were read in Pass 1, producing 8 object records in Pass 2.
9 pages of virtual memory were used to define 2 macros.

```
                  +----------------------------+
                  ! Macro library statistics !
                  +----------------------------+
```

Macro library name	Macros defined
_255DUA28:[FORRTL.OBJ]FORRTL.MLB;1	2
_255DUA28:[SYSLIB]STARLET.MLB;2	0
TOTALS (all libraries)	2

183 GETS were required to define 2 macros.

There were no errors, warnings or information messages.

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS$:FORREADIL/OBJ=OBJ$:FORREADIL MSRC$:FORREADIL/UPDATE=(ENH$:FORREADIL)+LI